Get Ready for Global Accounting: CIOs should start planning now to convert U.S. financial reporting systems to international accounting standards. PAGE 21

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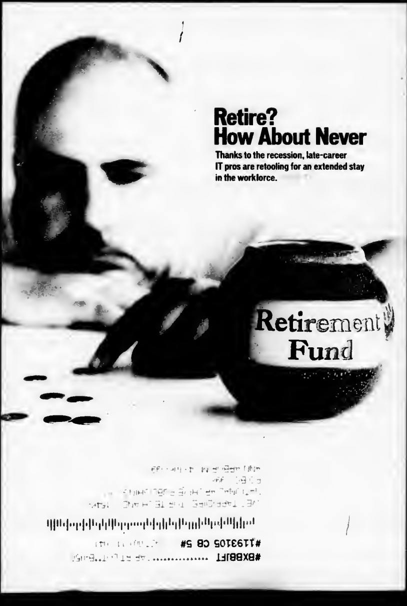
FEBRUARY 8, 2010



Retire? How About Never

Thanks to the recession, late-career IT pros are retooling for an extended stay in the workforce.

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With the Sun deal done, Oracle outlines plans for key products to try to allay customers' fears. PAGE 6

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■ ONLINE CHATTER

RESPONSE TO:

IT's 5 Big Security Mistakes

Jan. 13, 2010

Kenneth Van Wyk makes some excellent points, but it is appropriate to point out that the signatures used by today's anti-malware programs have little in common with the antivirus programs of 10 years ago, let alone 20. Just as malicious logic has increased in sophistication, so have the tools that combat it. Positive validation is definitely needed, but this too is just one layer of security and should not be over-relied upon.
■ Submitted by: *Aryeh Goretsky*

RESPONSE TO:

Drinking Google's Milkshake

Jan. 15, 2010

Google is not stupid. It knows pulling out of China won't keep hackers out. (Or not much, anyway. Physical access is still the best way to hack a computer, so it would be more difficult for Chinese hackers if Google were no longer there.) But Google is providing a lot of work for the Chinese. It's a bargaining tool.
■ Submitted by: *Daniel*

RESPONSE TO:

Health Care Reform We Can All Agree On

Jan. 18, 2009

Steven J. Vaughan-Nichols says he wants ER physicians to know everything they can about him, and he makes it sound like EHRs can save your life. They can also kill a patient as fast as anaphylaxis.

Someone who steals digital health records to fraudulently obtain health care can alter the record, and ER physicians will never have a clue until a post-mortem investigation reveals that the victim had allergies that had been deleted by a thief.

At the moment, there are more bad things about EHRs than good. Besides, Americans don't trust them. EHRs will never succeed without consumer support.
■ Submitted by: *D. Kellus Pruitt*

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Cloud Security Tips

Techniques for safeguarding data in the cloud include using third-party tools and divvying up responsibilities between your administrators and the service provider's team.
computerworld.com/s/article/9149921

2010 CPU Forecast

FORECAST 2010

From six-core desktop chips to minuscule smartbook processors, here's what to expect in CPUs. computerworld.com/s/article/9144720

How to Cope With an Unsupportive Boss

You're ready to advance, but your manager is asleep at the switch. Here's what to do.
computerworld.com/s/article/9147338

Help Desks Under Siege

Help desk pros are taking on more responsibilities with less assistance than ever. Will the skills they gain help them in the future?
computerworld.com/s/article/9144379

Data Center Density Hits the Wall

The days of packing more servers into the same space may be over.
computerworld.com/s/article/9144486

Telepresence: Hold On to Your Wallet

Be prepared to fork over at least $100,000 for that in-the-same-room feeling.
computerworld.com/s/article/9144041

Fresh Insights
New Trends
Great Ideas

HeadsUp

Last month's 7.0 earthquake leveled much of the Haitian capital of Port-au-Prince and devastated the infrastructure of land-line carrier Teleco.

UN PHOTO/LOGAN ABASSI

DISASTER RECOVERY

Aid Workers Rebuilding Haiti Networks

CARRIERS AND aid workers are scrambling to rebuild communications in Haiti following the catastrophic Jan. 12 earthquake there. Haiti's wired telecommunications system was devastated, and it is still nearly impossible for most people to make a land-line call, said Rick Perera, a spokesman for CARE, a U.S.-based aid organization.

"When you drive around and look at what the wires and poles look like, it's just beyond imagination," Perera said. He predicted that the country may abandon its wired network and go strictly wireless as it rebuilds.

In the first few days after the quake, the only way CARE employees could reliably communicate with headquarters in Atlanta was via SMS texting, Perera said. But the situation is gradually improving as some cell phone service and BlackBerry e-mail service is restored. Plus, aid groups have rushed to install broadband satellite links.

As of late January, the wired broadband in CARE's Haiti office was working intermittently, and the organization's Internet service provider had managed to upgrade the link to about 1Mbit/sec., Perera said. CARE brought in its own IT specialist from the U.S. and has been setting up voice-over-IP phones, while communications aid group NetHope Inc. has been helping CARE set up a VSAT satellite connection, he said.

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Meanwhile, Télécoms Sans Frontières, an emergency telecommunications aid group, has set up broadband satellite links for the United Nations peacekeeping force, the national police headquarters and an aid operations center at Haiti's main airport.

– Stephen Lawson, IDG News Service

RESEARCH RECAP

Carbon-Tracking Software Market Starts to Get Hot

Before 2008, if companies tracked their carbon emissions at all, they poured the data into spreadsheets. But a new category of software, called enterprise carbon accounting (ECA), is headed for "explosive growth" this year and next, according to market research by Groom Energy Solutions in Salem, Mass.

Despite the recession, there were positive signs for the market last year, with ECA start-ups receiving more than $46 million in venture capital, the research firm said in a statement. In addition, software giants CA, Microsoft and SAP entered the market.

Starting from a tiny base, the number of ECA software customers will increase fivefold by 2011, the study said. Groom Energy pointed to three factors driving demand:

- Pressure from customers and investors to create a greener public image.
- A desire to save money and energy by investing in sustainability projects.
- Mandates from buyers such as Wal-Mart, which plans to ask 100,000 suppliers to track the carbon emissions of their goods.

Groom Energy identified 60 ECA vendors and said that the market leaders are Enablon, Enviance, Hara Software, HIS Inc., Johnson Controls, PE International, ProcessMAP and SAP.

– MITCH BETTS

BETWEEN THE LINES
By John Klossner

Micro Burst

Data breach incidents last year cost U.S. companies

$204

per compromised personal record.

ENTERPRISE SOFTWARE

CIOs Clamor for Usage-Based Pricing

SICK OF overpaying for features they don't need or use, enterprise software customers are eager for vendors to adopt pay-per-use models that better align cost with consumption, according to an IDC report published last month.

Vendors that are eager to keep mining today's rich vein of upfront licensing revenue may resist. But they risk losing customers to software-as-a-service providers like Amazon.com Inc., which offer pricing schemes closer to true pay-per-use models, IDC said.

"Customers believe they have been forced to buy more software than they need or use," wrote IDC analyst Amy Konary. This creates a "value disconnect" that isn't alleviated by heavy discounting, she said.

Konary argued that vendors should move to pay-per-use models, under which they will have to do more to make sure customers are satisfied, and "where real value is in the ease, intuitiveness, and seamlessness of the experience."

She compared it to the music industry's shift from selling CDs to selling individual songs to customers, who are now empowered by software to manage their music collections the way they want to. She also likened it to Amazon's Web-based storage service, EC2, which lets companies host their own software and pay for it based on the number of application-hours used.

That's not true usage-based pricing — users pay the same rate whether the app is heavily or lightly used — but it allows customers to "purchase at a more granular level than was previously possible," Konary said.

Vendors are justified in fearing they would lose revenue from usage-based pricing, she wrote, but CIOs want assurance that costs won't suddenly spike as a result of unexpectedly heavy usage. A compromise would be the kind of tiered pricing used by cell phone carriers, Konary said.

– Eric Lai

PEER ADVICE

Users Want Reliability, Not Metrics

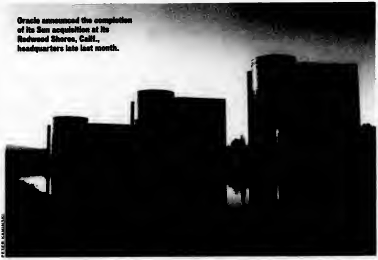
IT service metrics are important, but Chuck Musciano, CIO at Martin Marietta Materials, warns IT managers to remember that end users want good service, not good service metrics.

Writing on his blog, The Effective CIO, Musciano gave the example of a cable TV company responding to an outage during the Super Bowl by saying, "Even though we project that the outage will last for at least four hours, that still means that we provided service 99.72% of the time. This easily exceeds our 99.5% target metric for excellent service!"

Customers wouldn't be happy with that response, "yet many folks in IT hide behind metrics in a similar fashion," Musciano said.

"From the user's perspective, availability is measured as a binary value: yes or no," he explained. "You either provide your service or you don't. Metrics matter internally so that we can improve our service. But they have little bearing on user opinion and can actually do more harm than good. Use them wisely."

– MITCH BETTS



Oracle announced the completion of its Sun acquisition at its Redwood Shores, Calif., headquarters late last month.

PETER KAMINSKI

Deal Done, Oracle Looks To Reassure Sun Users

Oracle pares back product lines to focus on UltraSparc, Solaris, Java and MySQL.

By Patrick Thibodeau

On its first full day as owner of Sun Microsystems Inc., Oracle Corp. late last month moved quickly to convince users that it's time to stop worrying about the future of the acquired firm.

Questions about Sun's survival have lingered among its customers and investors since before Oracle's April announcement that it had agreed to pay $7.4 billion for the onetime Silicon Valley giant.

In the 12-month period that ended last September, Sun's share of worldwide server revenue declined from 9.5% to 7.5%, according to IDC's most recent numbers. Sun's server revenue in the third quarter of 2009 plunged by 35% from a year earlier, to $778 million, the research firm said.

In light of such results, Oracle's first priority is "to keep the vast majority of Sun customers on board and let them know they haven't been forgotten," said Charles King, an analyst at Pund-IT Inc.

During a Jan. 27 briefing to announce the closing of the deal, Oracle executives said that Sun's server lines would be "significantly" pared back as the company moves to a build-to-order model that will get the hardware operation back to profitability.

Oracle has already reduced the number of products on Sun's price list by 50%, according to Cindy Reese, who was senior vice president for supply chain operations at Sun and has joined Oracle in an as-yet undisclosed post.

At the same time, Oracle executives pledged to retain core Sun technologies like UltraSparc chips, the Solaris operating system, Java technology and the open-source MySQL database.

> **"It gives me hope, but I'm not sure that I've heard enough yet that I'm reassured.**
> **DANIEL GRIM**, CTO, UNIVERSITY OF DELAWARE

The European Union had held up the deal until Jan. 21 to study whether Oracle's ownership of MySQL would blunt database competition.

Ed Screven, Oracle's chief corporate architect, said the vendor has no plans to offer on-demand computing services, which indicates that Sun's nascent Open Cloud initiative may have been cut.

Reese didn't say how much money Oracle hoped to save by moving to a build-to-order model, in which orders for servers will be sent straight to factories, and systems will be shipped from there directly to customers. The new model will allow Oracle to close two distribution centers and reduce freight costs because unsold servers won't have to be shipped back to factories to be updated with new parts, according to Reese.

University of Delaware CTO Daniel Grim, a longtime Sun customer, said one message he heard is that Oracle wants to have a closer relationship with Sun users. "If they do that, it will be good," he said.

But Grim also wants to see some product commitments, including stronger support for Solaris on x86, which he noted is now all but unsupported.

"It gives me hope, but I'm not sure that I've heard enough yet that I'm reassured," Grim said.

Though Oracle wouldn't disclose the number of workers laid off at Sun prior to the close of the deal, CEO Larry Ellison did say the combined company would add 2,000 salespeople — "twice as many people as we'll lay off." ■

***James Niccolai** of the IDG News Service and Computerworld's **Eric Lai** contributed to this story.*

Fed IT Budget Chokes Spending, Eliminates Data Centers

Obama seeks to implement best practices used at top private-sector companies. **By Patrick Thibodeau**

PRESIDENT Barack Obama's 2011 budget proposal, released last week, would flatten federal IT spending and require federal agencies to consolidate IT operations.

The IT budget is getting far less attention than the administration's plan to scrap NASA's program for a manned mission to the moon, but its call to implement the best practices of successful private-sector data centers could lead to a radical transformation of federal IT operations.

The focus on revamping government IT shouldn't surprise budget watchers.

Over the past year, the Obama administration has hired the federal government's first CIO, moved to better take advantage of Web 2.0 technologies and solicited advice from executives at leading technology development companies and user organizations.

In fact, just two weeks before releasing the budget plan, Obama hosted a meeting of top executives from social networking firms, software companies and retailers to gather ideas for improving outdated federal IT systems.

The confab included tech heavyweights like Microsoft CEO Steve Ballmer and Facebook co-founder Chris Hughes, along with Liz Claiborne CEO William McComb and Staples CEO Ronald Sargent.

In its budget documents, the Obama administration is unsparing in its criticism, contending that government IT operations have a history of not delivering the type of productivity and performance gains "that are found when IT is deployed effectively in the private sector."

> **"The rise in social media and Web 2.0 technologies has proven that no single organization has a monopoly on good ideas.**
>
> **THE OBAMA ADMINISTRATION'S** FISCAL 2011 FEDERAL BUDGET PROPOSAL

Government IT officials must study and implement practices that private companies have created to improve efficiency and cut costs, the documents say. The proposal also calls on agency IT managers to use Web 2.0 tools like social networks to collaborate on best practices with experts in the private sector.

"The rise in social media and Web 2.0 technologies has proven that no single organization has a monopoly on good ideas," the administration says in the documents.

The budget also allocates money to fund the use of Web 2.0-style tools to make it easier for citizens to access government data and interact with federal agencies.

The overall IT budget proposal would boost spending by only 1.2%, to $79.4 billion. The increase is slightly less than the White House's inflation forecast for fiscal 2011, which begins Oct. 1. In comparison, the U.S. spent some $45 billion on IT in 2001.

Cost-cutting measures would include a reduction in the number of data centers run by federal agencies. The budget plan doesn't specify how many of the current 1,000 data centers the administration hopes to close, but it does point out that the government had just 432 in 1998.

The plan also calls for centralizing the delivery of some IT services to multiple agencies by using cloud computing technologies.

"There won't be a lot of wiggle room for new technologies," said Deniece Peterson, an analyst at government market research firm Input Inc. in Reston, Va. She added that about 70% of the money spent on government IT today is just "to keep the lights on."

Peterson said IT managers will likely begin to address the administration's concerns with small projects, but over the long term they will probably face more White House pressure for results than in the past.

She noted that the White House last year created an "IT dashboard" that rates IT projects and their performance at various agencies.

Putting such a spotlight on the performance of government IT operations is a means of "embarrassing agencies to perform," she said, noting that whereas IT failures could put a private company out of business, "the ramifications of failure are not as pronounced in government." ■

MICROSOFT CORP.

Dossier

Name: Chris Capossela

Title: Senior vice president, Information Worker Product Management Group

Organization: Microsoft Corp.

Location: Redmond, Wash.

Education: Bachelor's in computer science and economics from Harvard University

Sports: Capossela was a top regional junior tennis player while at Harvard.

His 15 minutes of Internet fame: As Bill Gates' onstage assistant during an April 1998 Comdex demo, Capossela plugged in the scanner that led to Windows' most public case of the Blue Screen of Death.

■ **THE GRILL**

Chris Capossela

Microsoft's Office marketing chief talks about adding **Twitter-like features** to SharePoint and the company's plans to **beat Google Apps.**

Chris Capossela's career path is a throwback, just like Dom's, the Italian restaurant in Boston's North End that his parents ran for 45 years. Capossela has been at Microsoft Corp. ever since he graduated from college some 18 years ago, working his way up from being Bill Gates' speechwriter to head of the Microsoft Project business, to his current role running marketing for some of Microsoft's most lucrative products: Office, SharePoint and Exchange, as well as their new hosted equivalents. He recently talked to Computerworld *about how his family background prepared him for Microsoft, how Microsoft plans to beat Google Apps, and how the company is adding Twitter-like features to SharePoint.*

You've basically worked at only two places in your life: your family's restaurant and Microsoft. Tell me about your first job. I grew up in Boston with two older brothers in an apartment over the restaurant my parents opened when they were 22. The apartment was just for sleeping — everyone was always downstairs. When I was a teen, I worked three to four nights a week during the school year, and six to seven nights a week during the summers.

How similar was working at a restaurant to working with Microsoft? My dad was very

Continued on page 10

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I think if we do a great job of innovating in areas adjacent to where we are strong, and naturally grow into new areas, customers will pay us for the value we provide.

Continued from page 8
smart about having the boys do all of the jobs in the restaurant. It was good preparation for Microsoft, where I've had a really different set of jobs, sometimes walking in the first day and literally knowing nobody inside that part of the company. I worked as chief of staff to the European president for Microsoft for several years. Some people advised me not to take it and work my way up. But because of my upbringing, I was comfortable with nontraditional lateral moves.

After some hesitation, Microsoft is jumping headfirst into software as a service. Are you worried that your revenue will dip as enterprises switch to SaaS versions of your products? I don't think so. I think if we do a great job of innovating in areas adjacent to where we are strong and naturally grow into new areas, customers will pay us for the value we provide. Voice is a good example. If we can help you make phone calls from within Outlook, or let you IM or call a name you see in a Word document, or make that phone call cheaper, then businesses are going to pay us more than they did before.

Speaking of voice, there seems to be some customer resistance to dumping their PBX hardware for your Office Communications Server. We feel good about the number of deployments thus far. Most of them do focus on instant messaging and various types of conferencing, about 140,000 seats. For OCS's voice features, it's about 25,000 seats now. We have some customers who will move to a new building and forgo a PBX, but those are early adopters. But with Office Communications Server 2010, we'll be able to say in many instances, "You don't need the PBX."

Google seems to be doing Google Docs in part just to hurt your revenue. It *is* making some enterprises reassess the value they get from Office, especially if they don't do any customizations or line-of-business apps. How do you convince CIOs that there is value there? Take a people process like a performance review. They are usually written in Word, but the end result goes off in some HR system like PeopleSoft or SAP. Budgeting is another very horizontal process. Most companies feel a lot of pain around the workflow and approval processes. They would love for Office to be more seamlessly integrated into their PeopleSoft system or SAP systems.

Another good example is Accenture. They've written a lot of apps around making SharePoint the Facebook of their company. Traditional skills repositories, where people are supposed to update their skills into a line-of-business app, often struggle despite their overdesigned back end because it's not a part of anyone's daily process. With SharePoint, their consultants can articulate what they're working on in a more unstructured way.

Do your mainstream corporate customers want Twitter-like features in your products? They may not be excited about Facebook and Twitter being used by their people, but they love the notion of their engineers learning and collaborating with each other on infrastructure that works with what they have and has great compliance. So for SharePoint 2010, we are introducing the ability for user profiles to have a little bubble on top of their heads that lets people know what their status is.

What are your favorite features in the coming Office 2010? The one I use the most is the Cleanup button in Outlook 2010. When I come back after three hours of meetings, I can hit it and get rid of all the middle e-mails in a thread. In PowerPoint 2010, it is how video editing is now a first-class citizen. You can also easily share your screen inside Office with remote coworkers.

Will Office Web have every feature that's in Office 2010? Of course not. We think it's more interesting to try and give you a great productivity experience tailored for a browser or phone. In OneNote, you can take a photo on your smartphone and have it imported directly into the app. Or the Web version of PowerPoint — it may miss some fancy animated transitions, but you can embed slide decks straight into a blog.

With Office 2007, you offered some aggressive pricing and discounts. Will you continue this with Office 2010? The biggest thing we did was make a distinction between the developed and developing countries. So we use geoblocking technology to prevent gray marketing so that we can offer a 40% lower retail price in India versus the U.S., both for English-language versions. We'll keep doing that. We also offered lots of promos: back to school, dads and grads. There's no statement here on what we'll do, but expect us to continue to do lots of promotions tailored for local countries or groups.

— *Interview by* **Eric Lai**

Bye-bye, nest egg. Late-career IT pros are retooling for an extended stay in the workforce.

FOR AS LONG as he could remember, Ben Richardson had had big plans for an early retirement.

Passionate about computers but anxious to leave the confines of a desk job, Richardson, a technical adviser in database services at CVS/Caremark Corp., had prepped for a host of post-tech alternatives even as he met the demands of his IT career.

He took classes and labored on business plans, dreaming of the time when he would be able to retire from IT and

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IT Careers: Retire? Never

pursue his love of what he calls "blue-collar hobbies."

He thought he might teach school, start an HVAC business or even get into general contracting and welding. "I wanted to spend more time outside and get healthy," Richardson explains. "Sitting in a chair for 30 years takes its toll."

Scratch that. Thanks to the tanking economy, Richardson, now 52, has put all those plans on hold. "When the recession hit, I knew I wasn't going to be able to retire," he says. "I decided to hunker down and keep my current job because the market was so poor. I have a good-paying job here, and changing jobs now isn't such a good idea."

Nearly two years into the recession, shrinking nest eggs and the fear of skyrocketing health care costs are forcing late-career IT professionals to trade dreams of early retirement for the reality of toiling extra years in the workforce.

Instead of channeling their energies to around-the-world travel, starting a new business or devoting time to volunteer work, many IT veterans find themselves either actively in the job market or desperately safeguarding their current employment. They're refocusing on career management, learning new skills and trying to be as flexible about their job responsibilities as twentysomethings just starting out.

WHIPPERSNAPPERS IN THE REARVIEW MIRROR

IT is hardly the only career sector ravaged by the recession — in fact, experts say IT has weathered the storm better than most. (For example, data for April to June 2009 from the U.S. Bureau of Labor Statistics indicated that unemployment rates for several key IT positions averaged 5.8%, which was substantially lower than the overall U.S. average unemployment rate of 8.9% for that period.)

If you're depending on a 401(k) plan to retire, you probably can't do it just yet.

People can't afford to coast. No one can sit on their laurels in the current work environment.

I get up every morning and soak my hands in hot water so I can work on a keyboard.

My plan now is to retire at 69 . . . but my health will probably be shot.

The contract opportunities dried up [which] put a monkey wrench into my plans.

Retire?

But budget cuts and layoffs have forced IT departments to make do with less, leaving older IT workers vulnerable to being replaced by younger employees whose skills may be more up to date and who are often willing to accept less pay, work longer hours and take on less-desirable assignments.

Overall, the recession has had far more of an impact on late-middle-aged adults than it has on people in other age groups. In an April 2009 Pew Research Center study of 2,969 adults aged 50 to 64, nearly 75% of the respondents said that the nation's economic problems are making it difficult to afford retirement.

Nearly two-thirds of those surveyed in that age bracket said their 401(k) accounts or individual stocks had been clobbered, with two in 10 claiming that their investments had lost 40% of their value and another four in 10 saying nearly 20% to 40% of their retirement funds had been erased.

"Everyone has been deeply affected by poor stock performance, and if you're depending on a 401(k) plan to retire, you probably can't do it just yet," says David Van De Voort, an IT workforce strategy consultant at Mercer LLC. "I get the sense that people are changing their plans in earnest," he says, particularly in new-economy sectors like IT, where retirement savings are more likely to be tied to the stock market.

Even IT professionals who are financially secure say they are putting off retirement for other reasons. Some can't afford — or aren't willing to spend the money on — the substantial health insurance premiums they'd have to pay out-of-pocket until they became eligible for Medicare. And many of those who were hoping to ease into semi-retirement with contract work have seen a lot of those opportunities dry up and wouldn't feel comfortable leaving a full-time gig.

Of course, some people aren't ready to retire because they enjoy their jobs, but even they have had to make some adjustments. Instead of being able to cruise comfortably through the twilight of their careers, these IT veterans have had to step it up a notch, making an effort to stay on top of management and technology trends, invest in ongoing training and, in some cases, completely retool their skill sets.

"There is no place to hide in this economy — IT has been affected by budget and staffing cuts and impacted by layoffs," says Dave Willmer, executive director of staffing firm Robert Half Technology and a *Computerworld* columnist.

The reality for IT workers of any age is that they are being asked to do more with less, take on roles outside their areas of expertise, forgo raises and deal with tighter deadlines. It might not be the grand finale that tech veterans envisioned for themselves, but it's the reality of today's market — one that all IT professionals must adapt to.

"No one can sit on their laurels in the current work environment," Willmer says. "Folks may not have planned on this, but it's better than the alternative, which is not working. People can't afford to coast. They have to perform and get back in the game, especially if they're going to be [working] longer than they anticipated."

To see how IT veterans are weathering these changes, *Computerworld* checked in with a group of late-career professionals. Here's what they had to say about the impact of the recession and their late-career Plan B's.

52 & RECONNECTING WITH THE DESK JOB

CVS/Caremark's Ben Richardson diligently planned for an early retirement — for years he dutifully socked away 10% of his earnings in a 401(k), received matching funds from employers and aggressively paid down his mortgage. But he believes now isn't the time to start anything new. His nest egg is a whole lot smaller than it used to be, he says, and regrettably, there isn't much of a market in Arizona, where he lives, to make a go of contracting work or to start his own HVAC business, as he had planned.


can't pursue his "blue-collar hobbies."

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Fortunately, Richardson, who graduated from college with a degree in chemistry, had decided even before the economy tanked that he should pursue a degree in computer science for job insurance. He graduated in 2007 from Colorado Technical University, even as he was dreaming of making a career out of his "blue-collar hobbies."

Now, instead of once more retooling his skills for a new career, Richardson says he's recommitting to staying in IT at CVS/Caremark. He's trying to make the most of that recent degree, which he believes increases his value to the company while opening doors to other roles, if and when he chooses.

Richardson's new plan is to retire in the next 18 months to two years, and he still sees a future ripe with plenty of new opportunities, possibly IT contract work as a SAS 70 or HIPAA auditor. "Just because I have my job doesn't mean I'm not able to accomplish my other goals," he says. "I'm keeping all irons in the fire and keeping all avenues open."

62 & WORRIED ABOUT HEALTH CARE COSTS

Glenn Kuhn, a technical consultant at Allstate Insurance Co., is doing whatever he can to keep his job safe.

Kuhn, 62, had hoped to retire between the ages of 55 and 60, but he's still plugging away programming mainframe systems, mostly because he's not in a financial position to move on. Like many other people, he has seen his retirement savings in 401(k) plans and IRAs lose a significant chunk of their value.

Yet the real barrier between Kuhn and a retirement full of fishing trips and visits with the grandkids is the rising cost of health insurance — he estimates an annual tab of about $10,000 to cover him and his wife until they are eligible for Medicare. "I'm 62 and have worked in this business pushing 40 years, but unless you've got some kind of health program, you're out of luck," he says.

While Kuhn has always enjoyed his work, the long, tedious hours at a keyboard and the stress of 2 a.m. emergency calls for system support have taken a toll on his body and his mind.

"I've got arthritis in my hands, have had carpal tunnel surgery and get up every morning and soak my hands in hot water so I can work on a keyboard," Kuhn says. "It's not like I'm a construction worker out there in the cold with frostbitten fingers, but in some ways, it's just as hard on your body and your mentality."

With his retirement delayed, Kuhn says he doesn't anticipate any radical late-career changes. Instead, he's keeping his nose to the grindstone and carrying on with the work at hand. Since he has chosen to stay in a more technical role, bypassing management, Kuhn knows he has to keep his skills fresh. With that in mind, he's taking classes in Unix and doing informal research to keep up with emerging technologies.

Kuhn's biggest hope right now is to be able to preserve the flexibility of his job, which currently allows him to work from home. "There aren't a lot of mainframe programmer jobs in northern Wisconsin," he says. "If my boss calls and says, 'We want you back in the office,' I'm going to get the hint real quick and say OK."

53 & HOPING FOR CONTRACT WORK

Steven Pratt, an eDBA for the Illinois State Police, has long had a Phase 2 career plan that would leverage his mainframe and DB2 programming skills. Pratt, age 53, had intended to take advantage of the state's early-retirement option, which he became eligible for in 2008, and dive into contract work to make up the difference in pay.

"Up until three years ago, there was a little niche of short-term contract opportunities," says Pratt, who had envisioned traveling to Iowa or Boston or anywhere else in the U.S. to work on projects for several weeks while having plenty of downtime between assignments.

"I saw it as an opportunity to have a second phase of my career, slow it down a bit and travel," he says. "But the opportunities all dried up with the change in the economy and put a monkey wrench into my plans." Now, his plan is to continue working full time for another two to three years and then reassess the market for contract work.

Pratt is brushing up his mainframe programming skills, specifically taking courses in assembler language — a skill that may be out of date for many markets but is still valued in state government.

Pratt sees a future where he has a leg up — not by learning new Internet programming technologies, but rather by staying faithful to the mainframe skills he knows best. "They still need my skills — it gives me job stability," he says. "There are plenty of job opportunities if I want to work full time. I just didn't want to work full time anymore, but that [part-time] opportunity has dried up on me."

67 & STILL WORKING 40 HOURS

Richard Langford, 67, also feels the pressure to ride out another couple of years in state government so he can take advantage of his state's full retirement benefits.

Langford, a project manager in the Utah Department of Technology Services, jumped around a lot during his career, which shut him out from employer-sponsored pensions. By his own account, he was lax about saving for retirement with an IRA or 401(k) plan. In fact, he didn't think much about retirement until it sneaked up on him. "I moved around so many times, I didn't worry about it," Langford admits. "Suddenly, at age 60, it became my real focus."

Now, while many of his peers are pursuing interests like fishing and hunting, Langford is still putting in a full state-mandated workweek — four 10-hour days. The load can be stressful and tiring for someone his age, he concedes. "My plan now is to retire at 69," Langford says. "My Social Security benefits will almost be at their max, but my health will probably be shot."

Langford is realistic about what it will take to remain an asset in IT for another couple of years. He is planning to get a Project Management Professional certification, which he hopes will put him ahead of the pack because it's rare among IT employees in the state of Utah.

59 & HAPPILY GOING STRONG

Some IT veterans, of course, are never ready to throw in the towel, regardless of age and financial position. Doug Sharp, an information systems specialist at the Michigan Department of Information Technology, says he's eligible for retirement now, at age 59, but has no interest.

It's not about the money — he's already eligible for the state's defined benefit program, so the recession hasn't affected him. Rather, he still enjoys the challenge of the job. "I had thoughts about retiring a year ago, but after considering it, I couldn't figure out what I would do," says Sharp, who has since boned up on technologies such as .Net and SQL Server, which are critical in his industry and his organization in particular.


still enjoys the challenge of his job.

Sharp also feels a responsibility to keep up maintenance on the 75 production applications he supports. "If I left, they'd be hurting a little bit," he says. "It's their problem, but it's also my opportunity."

George Hanrahan, 59, director of information systems for the Spokane Transit Authority in Washington, is also in no hurry to leave his post. The recession has had no significant impact on his retirement plans, and as long as his health holds up, he sees himself spending perhaps another decade at this job, guiding the transit company as it adopts newer technologies like IP security cameras, IP phones, ERP systems and even social media.

"I enjoy the job enough to stay," he explains. "If I could craft what I want, I'd work this into a part-time position and stay until 68 or 69, assuming my health is good."

Recession or no, Hanrahan says he has the same end-of-career goals as most IT professionals — success, and then closure: "I [hope to] see my vision put in place, hire my replacement and ride off into the sunset." ■


foresees spending as many as 10 more years at Spokane Transit.

Stackpole, *a frequent contributor to* Computerworld, *has reported on business and technology for more than 20 years.*

OPINION

Thornton A. May

Where Has IT's Passion Gone?

WHEN WAS the last time you woke up and *wanted* to go to work? If you could do anything you wanted, would you be doing what you're doing today? The future of IT depends on how you — and the people who work for you — answer these questions.

A dark aura of angst seems to have settled on portions of the IT community. In a Jan. 6 *Computerworld.com* article, the always insightful Patrick Thibodeau reported on a mid-2009 job satisfaction survey by the Corporate Executive Board that should give you pause. It showed a substantive worsening in an already frightening trend of IT employee disengagement from the purposes and goals of the enterprise.

The CEB research indicates that in 2007, only 12% of IT employees were considered "highly engaged." In 2009, that unacceptably low figure had sunk to 4%. Can this actually be true? Can 96% of the IT workforce really be less than wholly engaged? Was this data pulled from a particularly dark corner of the IT world? Are the IT shops of Western democracies populated by trance-walking zombies exerting just enough effort to keep from going into the career chipper? If the data is truly representative of what's happening in the IT workplace, the question becomes, What are you as an IT leader going to do about it?

While things may not be as dire as the CEB data indicates, it's likely that just about every CIO in the Global 2,000 has, at one point in his career, made a presentation to senior management in which he expressed concern over the next generation of IT workers. Do CIO direct reports have the skills necessary to manage the complexities of the future? The people at the top of the enterprise have their doubts.

Can it really be true that 96% of the IT workforce is less than wholly engaged?

When I've spoken off the record with CIOs' direct reports around the world, they've echoed this concern. Those who will lead next aren't convinced that they have the executive leadership toolkits for what comes next in IT. Currently, very little is being done to bridge this leadership skills gap.

Further validation of the looming development crisis in IT comes from the deans of executive education programs around the world, who say that there is no tougher sell than trying to persuade organizations to invest in executive development programs for their IT staffs. (There are, of course, exceptions. If they gave Nobel Prizes for IT staff development, Barbra Cooper at Toyota would get one.) Louis Pasteur once famously remarked, "Chance favors the prepared mind." Who is preparing the minds of next-generation leaders for what's to come?

That there is cause for concern is widely acknowledged, but still we fail to act. We are anxious but immobilized. Many executives in IT are sleepwalking through a high-risk (and high-opportunity) moment in history. IT is entering a 15-year window of unprecedented opportunity to create competitive advantage with technology.

That is, if IT can crawl out from under the ambition-crushing, innovation-sucking, soul-destroying minutiae of just keeping the digital lights on.

When Jimmy Carter gave his inaugural address in 1977, at a low moment for the country, he reminded Americans that "even our great nation has its recognized limits. . . . We cannot afford to do everything, nor can we afford to lack boldness as we meet the future. So together, in a spirit of individual sacrifice for the common good, we must simply do our best."

The next generation of IT leaders is ready to step up and do their best. Will the current generation give them the tools and development support to make that happen? ■

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VIRTUALIZATION:

Beware Of Server Overload

Vendors claim you can pack dozens of virtual machines inside one physical server. But that's a bad idea for heavy-duty applications.

By Sandra Gittlen

As virtualization stretches deeper into the enterprise to include mission-critical and resource-intensive applications, IT executives are learning that double-digit physical-to-virtual server ratios are things of the past.

Virtualization vendors may still be touting the potential of putting 20, 50 or even 100 virtual machines (VM) on a single physical machine. But IT managers and industry experts say those ratios are dangerous in production environments and can cause performance problems or, worse, outages.

> If you go into these virtualization projects with a false expectation, you're going to get in trouble.

"In test and development environments, companies could put upwards of 50 virtual machines on a single physical host. But when it comes to mission-critical and resource-intensive applications, that number tends to plummet to less than 15," says Andi Mann, vice president of research at Enterprise Management Associates Inc. in Boulder, Colo.

In a 2009 study of 153 organizations with more than 500 end users, EMA found that, on average, enterprises were achieving 6:1 consolidation rates for applications such as ERP, CRM, e-mail and databases.

The variance between the reality and the expectations, whether it's due to vendor hype or internal ROI issues, could spell trouble for IT teams. That's because the consolidation rate affects just about every aspect of a virtualization project — budget, capacity and executive buy-in. "If you go into these virtualization projects with a false expectation, you're going to get in trouble," Mann says.

Indeed, overestimating physical-to-virtual ratios can result in the need for more server hardware, rack space, cooling capacity and power consumption — all of which cost money. Worse yet, users could be affected by poorly performing applications. "If a company thinks they're only going to need 10 servers at the end of a virtualization project and they actually need 15, it could have a significant impact on the overall cost of the consolidation and put them in the hole financially. Not a good thing, especially in this economy," says Charles King, president and principal analyst at consultancy Pund-IT Inc. in Hayward, Calif.

Why is there a disconnect between virtualization expectations and reality? King says that up to this point, many companies have focused on virtualizing low-end, low-use, low-I/O applications such as test, development, log, file and print servers. "When it comes to edge-of-network, non-mission-critical applications that don't require high availability, you can stack dozens on a single machine," he says.

Bob Gill, an analyst at The-InfoPro Inc., agrees. "Early on, people were virtualizing systems that had a less-than-5% utilization rate. These were the applications that, if they went down for an hour, no one got upset," he says.

That's not the case when applying virtualization to mission-critical, resource-intensive applications — and virtualization vendors, on the whole, have been slow to explain this reality to customers, according to some analysts.

Once you consider applications with higher utilization rates, greater security risks, and increased performance and availability demands, consolidation ratios drop off considerably. "These applications will compete for bandwidth, memory, CPU and storage," King says. Even on machines with two quad-core processors, highly transactional applications that have been virtualized will experience network bottlenecks and performance hits as they vie for the same server's pool of resources.

Here are four tips for avoiding server overload.

1 START WITH CAPACITY ANALYSIS

To combat the problem, IT teams have to rejigger their thinking and dial back everyone's expectations. The best place to start: a capacity analysis, says Kris Jmaeff, information security systems specialist at the Interior Health Authority, a British Columbia government agency.

Four years ago, the data center at Interior Health was growing at a rapid clip. There was a lot of pressure to virtualize the 500-server production environment to support a host of services, including DNS, Active Directory, Web servers, FTP, and many production application and database servers.

Before starting down that path, Jmaeff first used VMware tools to conduct an in-depth capacity analysis that monitored server hardware utilization. (Similar tools are also available from Cirba, Hewlett-Packard, Microsoft, PlateSpin and Vizioncore, among others.) Rather than looking at his hardware environment piece by piece, he instead considered everything as a pool of resources. "Capacity planning should focus on the resources that a server can contribute to the virtual pool," Jmaeff says.

Already, the team has been able to consolidate 250 servers — 50% of the server farm — onto 12 physical hosts. And while Jmaeff's overall average data center ratio is 20:1, hosts that hold more-demanding applications either require much lower ratios or require that he balance out resource-intensive applications.

Jmaeff uses a combination of VMware vCenter and IBM Director to monitor each VM for telltale signs of ratio imbalances such as spikes in RAM and CPU usage, or performance degradation. "We've definitely had to bump applications around and adjust our conversion rates according to server resource demand to create a more balanced workload," he says. If necessary, it's easy to clone servers and quickly spread the application load, he adds.

"Because we did our homework with ratios of virtual servers by examining the load on CPU and memory and evaluated physical server workloads, we've been pleasantly surprised with our ratios," Jmaeff says.

2 MONITOR PERFORMANCE CONTINUOUSLY

At Network Data Center Host Inc., a Web service provider in San Clemente, Calif., the IT team quickly learned that when it comes to virtualizing mission-critical applications, you have to consider more than just RAM. "We originally thought, based on available RAM, we could have 40 small customers share a physical server. But we found that with heavier-used applications, it's not the RAM, it's the I/O," says Chief Technology Officer Shaun Retain.

The 40:1 ratio had to be pulled back to no greater than 20:1, he says. To help with that effort, the team has developed a control panel that allows customers to log in and see how their virtual machines are handling reads, writes, disk space usage and other performance-affecting activity. In addition, NDC Host uses homegrown monitoring tools to ensure that ratios aren't blown by a spike in a single VM's traffic.

3 TEST FOR APPLICATION STABILITY

King says companies should also conduct rigorous testing on their virtualized mission-critical applications before and after deployment. "You have to make sure that in terms of memory and network bandwidth, each application is stable at all times. For instance, if you know an application is harder-hit during certain times of the year, you'll want to account for that in establishing your ratios," he says.

Testing will also help IT teams determine which virtual workloads will coexist best on a physical host. "You have to make sure that a physical server isn't running multiple VMs with the same workload. Otherwise, if they're all Web servers, they will be contending for the same resources at the same time, and that will hinder your consolidation ratio," says Nelson Ruest, coauthor of *Virtualization: A Beginner's Guide* and founder of Resolutions Enterprises, a consultancy in Victoria, British Columbia. Instead, IT staffers should make sure that workloads are heterogeneous and well balanced based on peak usage times and resource demands.

Ruest also warns IT teams not to forget the spare resources that host servers need so they can not only support their own VMs, but also accept the workload from a failing host. "If you're running all your servers at 80%, you won't be able to support that necessary redundancy," he says.

Most organizations will find that they need to dedicate at least a month to the capacity planning and testing phases to determine the appropriate physical-to-virtual server ratio for their environment, Ruest says.

4 GET REAL-WORLD BENCHMARKS FROM PEERS

Finally, EMA's Mann advises IT teams to get involved in local user groups or attend large annual conferences, like VMware's VMworld or Citrix's Synergy, to meet peers with similar application environments. "Most attendees are more than willing to share information about their environment and experiences," he says. Rather than relying on vendor benchmarks, get real-world examples of what has worked and what hasn't at organizations with profiles similar to yours. "You'll have a better chance at setting realistic expectations." ■

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GET READY FOR GLOBAL ACCOUNTING

CIOs need to start converting financial reporting systems to the accounting standard used overseas. BY MARY K. PRATT

CIOs HAVE A NEW acronym to learn — and fast: IFRS.

U.S. companies are facing big changes in how they handle financial reporting, with the expected adoption of new accounting rules known as the International Financial Reporting Standards, or IFRS. And while fiscal concerns generally fall into the chief financial officer's domain, the expected accounting changes will affect IT, too.

"It's a CFO problem on Day 1. On Day 2, if the CIO or IT folks aren't involved in the project, then it will be one of the things that will end up on their plate for certain," says Dwayne Cook, partner and practice leader for the Mid-Atlantic area at Tatum LLC, an executive services and consulting firm in Atlanta.

The accounting overhaul stems from the expected switch from the long-standing U.S. Generally Accepted

5 Questions IT Must Ask

Terri McClements, a partner and U.S. IFRS advisory leader at PricewaterhouseCoopers, advises CIOs to work with the CFO's organization to build a team to handle the conversion to IFRS. The IT team members should ask the following questions:

1. Can our current software support IFRS?
2. Can current IT systems support both GAAP and IFRS, in case they both need to be used during the transition?
3. Are our software vendors planning updates to handle IFRS?
4. Are we planning any major software upgrades in the next few years? If so, how will the new systems handle IFRS?
5. Would this be a good time to replace some legacy systems?

At a Glance

The goal of the movement toward International Financial Reporting Standards is to have a single set of global accounting rules.

U.S. and international accounting boards have numerous "convergence" efforts under way to reduce the differences between U.S. Generally Accepted Accounting Principles and IFRS, such as their differing treatment of revenue recognition.

The greatest difference between IFRS and U.S. GAAP is that IFRS provides much less detail. The IFRS, which sets out principles, is about 2,500 pages long, whereas the more rules-based U.S. GAAP is about 17,000 pages.

The SEC is expected to decide in 2011 whether to mandate the adoption of IFRS rules by U.S. companies, which would have several years to convert. According to the SEC's current timeline, the largest companies would start IFRS reporting in 2014, and all public companies would switch by 2016.

Over 100 countries have already adopted IFRS, and that number will increase to more than 150 in 2011. Brazil, Canada and South Korea are expected to adopt IFRS in 2011, with Mexico on board in 2012.

Accounting Principles (GAAP) to the global IFRS model. Make no mistake: The switch to IFRS is complex. It will require more than just some tinkering to your company's financial software package. The adoption of IFRS will affect systems and processes throughout your organization, and preparing for it could take several years.

"You have to be doing the planning right now and find out where there's going to be an impact," says Jane Fedorowicz, a professor of accounting and information systems at Bentley University in Waltham, Mass.

The Securities and Exchange Commission has set preliminary dates for the conversion, saying that U.S. publicly traded companies will need to use IFRS starting as early as 2014.

Because many countries have already adopted IFRS or plan to do so in the next few years, businesses with global operations will need to comply sooner. This includes U.S. firms with overseas offices, as well as U.S. businesses owned by foreign companies or traded on foreign stock exchanges. Indeed, some U.S. companies in those categories have already adopted the new standards.

> **"You have to be doing the planning right now and find out where there's going to be an impact.**
> **JANE FEDOROWICZ**, PROFESSOR, BENTLEY UNIVERSITY

However, the SEC might not adopt IFRS as it stands today. Rather, it could adjust the standards to move them closer to the U.S. GAAP model, Cook says. This has left everyone guessing about what the standards might look like when they're adopted in the U.S.

Moreover, public companies aren't the only ones that need to focus on IFRS. Private companies that are thinking about going public someday or that get sold to a public company might opt to use IFRS too, Cook says. Private companies might also find that banks and private investors will push for statements based on IFRS so they only have to deal with one format for financial statements rather than different ones for public and private companies.

"IFRS looms in the horizon for most folks," says Cook, who has worked with companies around the world as they've converted to IFRS.

As the U.S. moves forward with the expected IFRS adoption, companies are beginning to assess what it means for them and their systems. Cook says companies will have to change the way they record and report financial data because IFRS and U.S. GAAP rules differ regarding revenue recognition, compensation, fixed assets and inventory, for example.

Ken Gabriel, a Chicago-based partner in the performance and technology division of KPMG LLP, says he performed an accounting assessment with

one company and found 103 differences between U.S. GAAP and IFRS in how data was recorded. Each of those differences represents a change that will be needed in the IT systems.

DATA DIFFERENCES

"IFRS is going to require different, more detailed or more frequent data. You're going to have to grab data from new places or new data from existing places, and you need the systems in place to accommodate it. So IT has to think about how to collect it and the business process responsible for collecting that data," Fedorowicz says.

Consider, for example, that the finance department's applications might rely on inventory figures that are coming from, say, a manufacturing application. Fedorowicz says that that manufacturing system, as well as all other applications that provide accounting and financial data, will need to conform to IFRS.

"A lot of people say [IFRS will affect] just the financial reporting ledger. They think the financial people will just be able to figure it out. But you won't be able to get the needed information from the general ledger," says Terri McClements, a partner and U.S. IFRS advisory leader at PricewaterhouseCoopers LLP.

Although systems throughout the organization will be affected by the conversion to IFRS, IT leaders seem slow to take up this project. McClements says she moderated a webcast in April 2009 and asked participants how many were already working with their IT leaders on this issue. Only 16% of the 2,000 participants said they were.

"IT has not engaged as much as it potentially should be," McClements says. "So our advice to an IT organization is get engaged [and] ask questions of the CFO organization as to where are we and where is the company in terms of assessing the impact."

Gabriel suggests that IFRS needs to be built into the IT organization's overall road map for the future. For example, if you're planning an upgrade to a system with a worldwide rollout starting in 2011, you need to make sure the new system accommodates IFRS from the start. Otherwise, you'll be handling another upgrade quite soon.

In a 2008 report titled "Effects of IFRS on Information Systems," KMPG said that IT expenses generally account for more than 50% of the cost of an IFRS conversion.

"Depending on the solution and where you want to address this, it could cost in the millions of dollars.

KEN GABRIEL, PARTNER, KPMG

"Depending on the solution and where you want to address this, it could cost in the millions of dollars," Gabriel says. And that will need to be budgeted well in advance, which is why it's important to start this assessment sooner rather than later.

"IT needs to know [what's required] because they have to put dollars into their budget to accommodate changes," Gabriel adds. He acknowledges that the conversion is a moving target, with the final timeline and the standards themselves still not set. "But you can still understand what the significant differences will be for your company and what the system impact will be for your company."

The consequences for not being prepared could be pretty severe, Cook says. If you're not ready on time, your finance department might be forced to convert figures from GAAP to IFRS manually — a time-consuming and costly endeavor. Or you might have to perform patch fixes to your system, which could lead to costly and embarrassing errors.

"I've seen it done in other countries as an afterthought," Cook says, "and companies spend a lot more time and a lot more money if they don't do the proper planning." ■

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Gearing Up

"The next several years will bring a near-constant rate of accounting change," according to a report on IFRS by PricewaterhouseCoopers. Recent surveys of U.S. finance professionals provide the following snapshot of their views about the expected U.S. conversion to IFRS accounting rules.

89% say IFRS conversion is highly or somewhat likely to become mandatory in the U.S.

67% say their company has designated a person or team to monitor or focus on IFRS.

80% are positioning their companies to address IFRS.

18% consider IFRS conversion a high priority. Meanwhile, 38% consider it a moderate priority, and 44% consider it a low priority or not a priority at all.

41% consider the overall pace of IFRS conversion in the U.S. to be "just right," while 19% consider it too slow and 20% consider it too fast.

Privacy Training Gone Awry

Despite good intentions, companies often make these five mistakes when educating employees about data protection. **By Jay Cline**

THE Health Insurance Portability and Accountability Act requires it. The Payment Card Industry Data Security Standard requires it. The ISO 27001 standard requires it. In fact, every regulation that mandates that reasonable measures be taken to protect information implicitly requires companies to set up training programs to help employees understand what those measures are.

But what does *training* actually mean?

Many corporations have adopted a check-box approach toward compliance with this obligation. Here are five shortcuts I see them taking instead of using the opportunity to ensure that employees really know how to protect information.


Jay Cline

1 **Doing separate training for privacy, security, records management and ethics.** Do you get one message from your chief privacy officer, one from your chief information security officer, and an annual sign-off on the code of ethics from your legal department? You're not alone. In large companies, the people responsible for specific functions don't want to dilute their messages by mixing them with related topics. So they each go their own way with training and awareness. The result is confused employees who just want one place to go to learn the do's and don'ts of information management.

2 **Equating campaign with program.** When executives get money to spend on "soft" projects like privacy training, the natural first step is to launch an awareness campaign. Some deploy computer-based training modules. Once they do that, they might think that they have a program in place. But there's a difference between hitting employees with one or two messages a year and surrounding them with reminders that the policies are real, have teeth and are baked into the culture. A true training program has an annually refreshed calendar of messages and training for different employee groups throughout the year.

3 **Equating awareness with training.** Does your company post some PowerPoint presentations to an intranet, send out some e-mails, put up some posters and say it has a privacy and security training program? An effective information-risk training program will certainly include awareness campaigns, but it will also include role-based training to educate smaller groups about what they should be doing to implement those policy objectives.

4 **Using only one or two communication channels.** Let's face it: We live in a multimedia world. Our employees are used to big-screen TVs, sophisticated visual effects, podcasts, chat and more. Yet how many of our awareness campaigns are limited to a few e-mails and a couple of PowerPoint presentations? Consider incorporating sound, moving pictures and interactive content into your training program.

5 **Failing to measure.** Security experts often say that insiders are the biggest threat to corporate information, and the list of breaches maintained by the Privacy Rights Clearinghouse is dotted with incidents resulting from employee mistakes. Employee training is probably the most important component of an information risk management process. Yet few companies actually measure the effectiveness of their privacy training programs. Consequently, the budgets for these "soft" initiatives are prime targets when it's time to cut costs.

I still remember the most effective training session I ever had, over 10 years ago. The trainer walked us past the data center, gathered us in a conference room and drew a big circle on the board. She paused, looked us in the eyes, and said, "Everything you do here will fall somewhere on this board." Some of our choices, she said, would be deemed wrong by everyone and would fall outside the circle. Some would fall into a gray area on the edge of the circle. But at this company, she said, putting a dot on the board, our choices had to be at the center of the circle.

That told me everything I needed to know about that company's policies and ethics. Will employees remember as much about your privacy training and awareness program 10 years from now? ■

Cline, *a former chief privacy officer at a Fortune 500 company, is president of Minnesota Privacy Consultants and a* Computerworld.com *columnist. You can contact him at cwprivacy@computerworld.com.*

Latest Malware Is a Call to Action

Practice tempers panic. But the **Google 'Operation Aurora'** malware required a few extra **precautions.**

Trouble Ticket

AT ISSUE: There's evidence that the latest big-news malware has gone undetected in the company.

ACTION PLAN: Track it down, root it out, and bar its return.

I GOT A call from an information security colleague who had forensic evidence from a command-and-control server identified as part of the so-called Operation Aurora incident that included a hack of Google in China. The evidence showed connections from my company's DNS servers to questionable domains. As you can imagine, I was alarmed.

Alarmed, but not panicked. At the end of the day, this was just another piece of malware, and we have the experience to deal with that. And I hadn't seen any unusual activity flagged by our antivirus software and intrusion-detection system, or any other indicators that we might be infected with a zero-day exploit — no network bandwidth anomalies, no sudden increases in help desk calls related to system weirdness and no mentions on the various threat blogs that ours was a victimized domain.

Still, this piece of malware was reported to be more sophisticated than most in the way it operates and communicates.

With any malware, I want to determine whether my company was infected, whether the infection compromised intellectual property or other sensitive information, and whether our products' integrity was affected. Of course, I also want to remove the infestation and get back to a steady state without any business disruption.

First, I checked our DNS servers. I have high confidence in their integrity, because they are hardened and because we use Tripwire to detect changes. After a thorough review conducted using various tools and Unix compromise checklists that can be found on the Internet, we determined that the DNS servers seemed unhacked.

The next task was to find the systems that were querying the suspicious site, perform the forensic analysis and start cleaning up the mess.

■ With any malware, I want to remove the infestation and get back to a steady state without any business disruption.

After we enabled logging on our DNS servers, we could see the suspect queries. But they all originated from our Active Directory servers. That's because all of our Windows servers point to AD for name resolution first, and then the request is passed to the Unix DNS infrastructure. That meant we needed to log DNS queries at our AD server. It was a challenge, due to the sheer amount of log data, but we were able to identify some beaconing hosts.

DIGGING DEEPER

At the same time, we contacted Juniper, our IDS vendor, and it provided a signature file for our IDS sensors. It detected attempts to exploit the Internet Explorer vulnerability that had enabled this whole mess. Almost immediately, we began to see alerts from every sensor, in the U.S., Germany, Taiwan, Hong Kong and Singapore — connections from PCs and servers, mainly to development SAP systems. Only a few were outbound connections on Port 80, which thankfully were blocked by our content-filtering engines.

We then contacted our antivirus vendor, Trend Micro, which released pattern files for our OfficeScan servers that we are now pushing to the more than 8,000 Windows resources on our network. But I still wasn't satisfied, since none of this told me the impact on our intellectual property. We took an EnCase image of a couple of affected machines prior to the installation of any patches or antivirus updates, which let us use the freely available Wireshark packet sniffer to analyze the network traffic generated by the malware. I also wanted to see if the malware installed keystroke monitoring software or other data-collection programs.

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The forensic analysis continues, and we plan on pushing a new Microsoft patch within the next couple of days to prevent future incarnations of this malware from impacting our environment. ■

*This week's journal is written by a real security manager, **"Mathias Thurman,"** whose name and employer have been disguised for obvious reasons. Contact him at mathias_thurman@yahoo.com.*

■ OPINION

Bart Perkins

Cloudy, With a Chance of Trouble

MANY ORGANIZATIONS are considering shutting down their data centers and migrating most IT functions to the cloud. Beware, though: Not all clouds are soft and fluffy.

Before committing to a migration to cloud computing, you'll need to weigh a number of issues. Here are some of the thornier ones you should address:

Internet access. Cloud applications require reliable high-speed Internet access. Although Internet service is increasingly reliable, all carriers experience periodic problems. And when an outage occurs, you'll have to be patient. Your outage is unlikely to be fixed before the problem is solved for everyone. Moreover, most carriers still have difficulty supporting multiple large-bandwidth requests simultaneously. Critical cloud-based services require comprehensive contingency plans that involve multiple Internet access points.

Support. Cloud customers do not control update schedules or problem-resolution priorities. MySAP, Salesforce.com, Flickr and other cloud providers update software based on unknown internal criteria, with little customer input. Don't expect to know where your problems fall on your provider's priority list, or to receive any hand-holding.

Legal issues. Government regulations determine how people with fiduciary responsibilities can communicate with their clients. Want to use Twitter to contact clients? If you're a fiduciary trustee, you should think about federal records retention regulations. Virtually all Web 2.0 services lack sufficient user-level backup capabilities. You can hire programmers with Web 2.0 expertise or subscribe to a service like Backupify. But even then, some data may be inaccessible — for example, there is currently no way to download videos from Facebook.

What's more, the physical location of cloud data is unknown. European Union privacy laws prohibit certain data from crossing borders. And conducting a SAS 70 audit is extremely difficult in the cloud. Companies must rely on cloud providers for compliance, but who is ultimately responsible for violations? Moreover, liability for a cloud data breach is unclear. Who will pay?

■ Beware: Not all clouds are soft and fluffy.

Data retrieval. Cloud providers make it easy to upload data. Unfortunately, each provider uses proprietary data definitions and data structures. In addition, they offer no simple tools for downloading bulk data. So, what goes up may not come down. Most customers are forced to use an Internet connection, often at unacceptably slow data-transfer rates. At 100Mbit/sec., it takes one to two days to export 5TB. Worse, it can be extremely expensive; Amazon charges 10 cents per gigabyte, or $100,000 per petabyte, to download data from its S3 storage service.

SLAs. Cloud providers have different service-level targets. For example, Amazon, Rackspace and 3Tera define an outage differently. Furthermore, each provider uses a different process to document outages and process any resulting user credits.

Governance. The cloud makes it easy for rogue departments to implement new services without IT's knowledge. If the offending departments are not IT-savvy, new systems may be implemented with insufficient documentation, ineffective security or nonexistent workload management. And guess who will have to support those loser apps!

Financial complexity. Established companies have enormous investments in infrastructure. To be financially viable, providers must create financial models that offset total migration costs. Do a comprehensive financial analysis before committing.

Cloud computing is essentially just another type of outsourcing, with similar risks and benefits. Are you ready to trust the cloud with your most precious resource, your revenue-generating systems? Don't leave your organization exposed to thunder clouds; lightning may strike at any moment. ■

Bart Perkins *is managing partner at Louisville, Ky.-based Leverage Partners Inc., which helps organizations invest well in IT. Contact him at BartPerkins@LeveragePartners.com.*

Career Watch

■ ASK A PREMIER 100 IT LEADER

Jessica Carroll

The managing director of information technologies at the **U.S. Golf Association** answers questions on skills, leadership and staying in IT.

What skills do you think will be most valuable to acquire in 2010? Adaptability, an understanding of the evolving cloud environment and the ability to listen to the needs, initiatives and obstacles across all areas of your organization will be key. To succeed in technology, you need to do more than understand the mission of your company — you need to understand where and when to apply emerging technologies to help drive forward the most critical goals. In 2010, it will be pivotal to lay the groundwork for long-term cloud strategies for your organization. Use of the cloud, as an alternative to traditional data centers, will become standard over the next few years. The question that each IT leader needs to answer is where this new business tool fits and how to adapt it to effectively enhance your company's work processes.

What have been your best lessons on leadership? The best lesson was probably one of the most painful to learn: You cannot expect to be an IT leader by simply keeping the network running and your end users happy every day. The role of IT is far more intricate than that. It is significantly important to see your organization as part of a much larger picture, with technology as the catalyst that moves corporate initiatives forward. You have to see the long-term vision and be able to encourage the changes needed in order to implement these initiatives by working closely and, most significantly, in step with all levels of staff companywide.

PAGE COMPILED BY JAMIE ECKLE.

Job Competition

You already know that Detroit is a tough place to get a job these days, and you might be aware that one of the more stable employment sectors right now is government. Juju.com arrived at the same conclusions by calculating the number of unemployed people available for each advertised job in 50 top metropolitan areas. Here are the top and bottom five. You can learn about other locales by visiting the press area of the company's Web site (*http://tinyurl.com/juju-study*).

	Unemployed people per advertised job
1. Washington, D.C.	1.93
2. San Jose	2.5
3. Baltimore	2.93
4. Salt Lake City	3.22
5. New York	3.32
46. Los Angeles	10.82
47. Riverside, Calif.	11.9
48. Miami	14.06
49. St. Louis	18.63
50. Detroit	20.01

SOURCE: JUJU.COM, JANUARY 2010, USING ITS OWN DATA AND UNEMPLOYMENT FIGURES FROM THE BUREAU OF LABOR STATISTICS

2009 was a rough year for me, with pay cuts and constant worry about layoffs. Thankfully, I've survived so far, but I sometimes wonder whether there might be a less stressful way to make a living. My problem is that I love technology. What keeps you going in IT day to day? I am motivated by the constant and ever-changing challenge of technology. While most of the time IT is indeed a stressful career, it has its intellectual satisfactions, and probably the greatest of those is anticipating problems before anyone else can see them coming. Last year, the economic situation, in all of its awfulness, also afforded a chance for us to get creative. It forced us to think differently to solve problems more efficiently, and it opened everyone's minds to trying new technologies. A great example of this at our organization was the need to cut travel costs to the bare minimum and yet still provide rich outreach to all of our constituencies. Our IT group had already established use of the cloud as an interactive business tool, and with online services for live presentations and meetings, self-paced online education, and collaboration via Web portals, we were able to seamlessly meet those needs. It's solving just these kinds of problems that makes working in technology so rewarding.

QUESTION?
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IT|careers

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TRUE TALES OF IT LIFE AS TOLD TO SHARKY

Now THAT'S What We Call an Excuse!

Pilot fish gets a help desk call from a user who also happens to be a friend. "He said he was bringing his laptop to IT to fix a problem he was having with printing," fish reports. "Several hours went by without the user showing up, though. The next morning, his boss brought the laptop by, saying that the user was out sick. One look at the laptop told us that something was radically wrong – the display was dangling by the interconnect cable, the keyboard had been destroyed, and the laptop was generally trashed. Turns out the user was bringing the laptop to the IT office, but while crossing between buildings he was unlucky enough to walk under a large falling icicle, which not only seriously injured the user but sent the laptop flying. His boss was still sure we could 'just put it back together.' We're going to the hospital this afternoon to visit the user."

Unclear on the Whole 'Make Work' Concept

This IT manager pilot fish works at a manufacturing plant way out in the boondocks and – as usual – anything with electricity flowing through it is part of his responsibility. "That includes the multiline phone system," says fish. "One day the boss also assigns me to review the monthly half-inch-thick phone invoice, saying, 'It's part of the phone system.' So I track down all the hard-copper fax lines and find several not in use, but we're paying for them. I dig deeper and find a lease on a little two-line phone at one of our small offices further out in the boondocks that we have been paying for monthly for several years, and it doesn't even exist anymore. None of this fazes the boss. Final straw: I uncover a maintenance contract on our last phone system that we have been paying $700 for quarterly for about five years. After I report this to my boss and to corporate, all phone-system bills and contracts are immediately transferred to corporate for processing. My boss didn't say a word."

But He Did Work It Out by Himself

At the small college where this pilot fish works, a big power failure puts out all of the lights on campus and in the entire surrounding area. "We didn't have a generator then, so the data center and all our servers were dark," says fish. "The campus maintenance supervisor called me on my cell phone and asked me to send an e-mail message to all users, letting them know that the power failure would probably last several hours. After a few minutes, he called back and sheepishly said, 'Never mind.' "

■ *Don't leave Sharky in the dark with nothing to do. Send me your true tale of IT life at sharky@computerworld.com. I'll file off the identifying marks, and you'll snag a snazzy Shark shirt if I use it.*

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BPA ABM

■ OPINION

Scot Finnie

IT Shops, It's Time to Restart Your Engines

SOME PEOPLE are loath to come right out and say this, but I will: The recession is over, and when the numbers are all sorted, I'm guessing the experts will say we turned the corner early last fall, if not sooner.

Sure, there are qualifiers. With such a deep recession, the recovery may be slow. Jobs are a lagging indicator, and we may have double-digit unemployment for some time to come. And the housing market is still weak.

But the technology sector is far from weak. In fact, technology looks to be leading the charge. Over the past few weeks, there's been up-and-down news about the economy. But when you home in on tech financials, IT spending forecasts and tech vendors' quarterly sales figures, things are looking upbeat.

A few weeks ago, for example, Gartner raised its 2010 worldwide IT spending growth projection to 4.6% from 3.3%. Although that's fairly modest growth, it represents a big swing from 2009's 4.6% drop in IT spending. Forrester, meanwhile, is projecting 6.6% IT spending growth this year.

Maybe you aren't terribly concerned because the full effects of this recession were never felt in your IT shop. Chances are good that your IT organization didn't stop spending entirely and continued rolling out projects, implementing new technologies, maintaining infrastructure and performing upgrades. But there's a good chance that you did lose some personnel, or at least saw new hiring postponed, and you almost certainly had to cancel or delay some projects. Most IT shops aren't running at anywhere near full speed.

And if you work in one of those shops, you might want to heed this very sound advice, which *Computerworld* offered in the story "Recovery Ahead" back on Aug. 10:

■ Business is going to begin to rev up soon, making this the time for IT shops to act.

"Once the business demand for IT services starts growing in an economic recovery, it's far too late for an in-house IT department to ramp up to meet that demand. The time to prepare for a recovery is just before the recession starts to bottom out.... You can't just wait until the recession is declared over."

That advice may have been difficult to act upon last summer, though. The climate at many organizations has been cautious to the point of paralysis — and that's completely understandable, given the economic environment.

But, IT leaders, this is your final wake-up call. Six months from now, you won't be able to afford to be complacent. Business is going to begin to rev up, and now is the time to lobby for new head count, place orders for new enterprise apps and systems, initiate due diligence on major new projects, spend money on training and line up outsourcing partners.

And if it's still early in your fiscal year, this might also be the time to double-down with your budget on a medium-size project that you've had in your back pocket. It should be something that has an excellent chance of saving a big chunk of change or facilitating incremental revenue growth.

If you're not convinced about the need to act now, remember the principles of supply and demand. IT products and services that haven't seen much demand lately are sure to be less expensive (and delivered more quickly) today than they will be when things are really booming six months from now. And after the economy upshifts, it will be much more difficult to hire talented people with valuable IT expertise than it is right now. The better talent will go to those who act first.

Sure, recoveries tend to be bumpy, and they come to different companies and industries at different times. Temper my advice with your own company-specific insights. Just be prepared. Properly timing this recovery might save you and your company money and help you address crucial business needs faster. You can't afford to wait this out. ■

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